

it varies in size, color, habit, etc., according to changing conditions, how it is related to other plants and how it may be classified, etc. Or we may pursue any one of these lines more thoroughly than the others, and this to the best advantage when we do not neglect the living plant in its natural state.

Broadly speaking, each branch of botany, or each line of plant study, is as important, progressive, and productive of knowledge and intellectual development as any other; whether we study the plant from the economic standpoint, how it may minister to our wants or otherwise affect our welfare, and how we may modify its conditions of growth, improving the good and destroying the bad; or from the purely scientific point of view, study its structure, growth and behavior under various conditions, the development and functions of its organs and tissues, its relation to environment, and the relation of the plant in these respects to other plants and its position in the systematic classification of plants; or from the point of view of education and culture, aim to develop a more intelligent, broader and better view of life.

PORT RICHMOND, N. Y.

Notes on ferns attacked by a leaf roller

PHILIP DOWELL

The fern student has no doubt noticed occasional fronds rolled up and drawn together at the tip. On closer examination he has found that a fine web has been spun, holding the parts together, and that the ball or nest thus formed is the home of a small larva. The attacks of this larva were especially noticeable during the summer of 1908, and have not been so noticeable during the past two years.

On October 10, 1908, at a meeting of the Section of

Biology of the Staten Island Association of Arts and Sciences, the writer commented on the attacks of this larva, and recorded comments in the Proceedings of the Section of Biology as follows:*

"The ferns were more than usually attacked by a leaf-rolling insect, the larva of which had destroyed the tips of many of the fronds especially of the Christmas fern and various species of *Dryopteris*. The larva was determined by Dr. H. G. Dyar, of the U. S. National Museum, as a pyralid (*Pyrausta* sp.). This attack on the tips of the fern fronds has also been noticed by Mr. Harold W. Pretz, of Allentown, Pa., and commented on in a letter (Aug. 28 [1908]), in which he said: 'Our ferns near home are in poor condition from the attacks of some larva. *D. cristata* \times *marginalis* has suffered very much.' It might be added here that the attacks of the larva were made chiefly during the early part of the season."

The same thing had been noticed by Mr. William R. Maxon and was recorded in the same proceedings† for the meeting of the Section of Biology on December 12, 1908, at which meeting he was present, and "mentioned the fact that he had noticed the fronds of *Dryopteris simulata* Dav. in Maryland attacked by an insect, which had spun a fine web and drawn the pinnæ of the tips together."

*Proc. Staten Island Assoc. 2: 170. 18 Au 1910.

†Loc. cit. 2: 172. 18 Au 1910.